

IN THE CLAIMS:

Please cancel claims 55, 57-59, 65, 68, 70, 71, 74 and 75 without prejudice.

Please amend claims 54, 56, 60, 66, 69 and 76 as follows:

54. (amended) A polynucleotide encoding a polypeptide epitope of a B-cell lymphoma surface immunoglobulin antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, and a nucleic acid sequence promoting expression of said polypeptide in a plant cell or plant, which polypeptide:

(a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;

(b) is produced in a plant cell or plant that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;

(c) is obtainable from said plant cell or plant in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and

(d) is capable of inducing an immune response in a mammal, including said subject, so that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes.

In claim 56, line 1, delete "55" and insert ---54---.

In claim 60, line 1, delete "59" and insert ---54---.

In claim 66, line 1, delete "65" and insert ---64---.

In claim 69, line 1, delete "67" and insert ---66---.

In claim 76, line 2, after "times", insert ---, each---.

Please add new claims 77-86.

77. A polynucleotide encoding a two domain single chain antibody (scFv) wherein a first domain is linked to a second domain by an amino acid linker that

- (i) has between one and about 50 residues;
- (ii) consists of between one and 12 different amino acids,
- (iii) facilitates secretion and correct folding of said polypeptide to mimic the tumor epitope in its native form in or on said tumor cell,
- (iv) is a member of a randomized library of linkers that vary in size and sequence, and said library is encoded by nucleic acid sequences consisting of a repeated pattern of degenerate repeated triplet nucleotides having the following requirements;
 - a) position 1 of each repeated triplet cannot be the same nucleotide as position 2 of the repeated triplet;
 - b) position 2 of each repeated triplet cannot be the same nucleotide as position 3 of the repeated triplet; or
 - c) position 1 of each repeated triplet cannot be the same nucleotide as position 3 of the repeated triplet.

78. The polynucleotide of claim 77, wherein in said linker of said polypeptide,

- (i) position 1 of each repeated triplet is deoxyadenosine or deoxyguanosine;
- (ii) position 2 of each repeated triplet is deoxycytidine or deoxyguanosine; and
- (iii) position 3 of each repeated triplet is deoxythymidine.

79. The polynucleotide of claim 78 wherein said scFv includes at least part of the V_H domain and at least part of the V_L domain.

80. The polynucleotide of claim 79 wherein said domains are those of a surface immunoglobulin epitope of a B-cell lymphoma.

81. The polynucleotide of claim 54 wherein the polypeptide is capable of inducing said immune response without a need for adjuvant or other immunostimulatory materials.

82. A polynucleotide encoding a polypeptide epitope of a B-cell lymphoma surface immunoglobulin antigen useful as a tumor-specific vaccine in a subject with a tumor or at risk of developing a tumor, encoded at least in part by a nucleic acid in the cells of said tumor, and a nucleic acid sequence of a vector capable of replicating in a plant cell or plant, which polypeptide:

(a) includes an epitope or epitopes unique to, or overexpressed by, cells of said tumor, thereby distinguishing said tumor from all other tumors (i) of the same or different histological type, (ii) in said subject or in another member of said subject's species;

(b) is capable of being produced in a plant cell or plant that has been transformed or transfected with said nucleic acid derived from said tumor of said subject;

(c) is obtainable from said plant cell or plant in correctly folded form, without a need for denaturation and renaturation and mimics said epitope or epitopes in their native form; and

(d) is capable of inducing an immune response in a mammal, including said subject, so that administration of said polypeptide results in an antibody or cell-mediated immune response to said epitope or epitopes.

83. The polynucleotide of claim 82 wherein said vector is a plant virus.

84. The polynucleotide of claim 82 wherein said polypeptide is produced transiently in said transformed or transfected plant.

85. The polynucleotide of claim 82 wherein said vector contains a subgenomic promoter capable of promoting expression of said polypeptide.

86. The polynucleotide of claim 82 wherein said polypeptide is a two-domain single chain antibody (scFv) that includes said at least part of the V_H and the V_L domains.